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72

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

MAKI, STEVEN D

ART UNIT	PAPER NUMBER
1733	5

DATE MAILED: 10/01/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Offic Action Summary	Application No.	Applicant(s)
	09/777,653	OHSAWA, YASUO
Examiner	Art Unit	
Steven D. Maki	1733	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM
THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on ____.
- 2a) This action is FINAL. 2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 1-24 is/are pending in the application.
 - 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) Claim(s) ____ is/are allowed.
- 6) Claim(s) 1-24 is/are rejected.
- 7) Claim(s) ____ is/are objected to.
- 8) Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on ____ is/are: a) accepted or b) objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) The proposed drawing correction filed on ____ is: a) approved b) disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.
- 12) The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. ____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.
- 14) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
 - a) The translation of the foreign language provisional application has been received.
- 15) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) Notice of References Cited (PTO-892)
- 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) Information Disclosure Statement(s) (PTO-1449) Paper No(s) ____.
- 4) Interview Summary (PTO-413) Paper No(s) ____.
- 5) Notice of Informal Patent Application (PTO-152)
- 6) Other: ____.

1) The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2) Claims 1-24 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 1, the scope and meaning of "the longitudinal directions of said groove" is unclear. There is no antecedent basis for "the longitudinal directions". What are "the longitudinal directions (plural)?"

Claims 3, 16 and 20 are indefinite because they also describe "the longitudinal directions" / "the ... longitudinal directions"

Claim 5 is indefinite because it is unclear how "if" affects the scope of the claim. It is suggested to appropriately remove "if". For example, in claim 5, it is suggested to make the following changes: (1) on line 2 change "if" to --and-- and (2) on line 3 delete --if--.

In claim 6, it is not clear why "circumferential directions" (plural?) is being described.

As to claim 7, the relationship between the smaller grooves and the undulating groove wall surfaces is unclear. Does each smaller groove have an undulating wall surface? In claim 7 line 3, it is suggested to change "and have" to --so as to define--.

In claim 9, the description of "the confluence of said groove and said groove" is confusing and ambiguous.

In claim 15, it is unclear how "when" affects the scope of the claim. It is suggested to appropriately delete --when--. Also, claim 15 contains antecedent basis problems (e.g. "the groove wall faces of a larger size", "the larger pitch").

In claim 17, it is not clear why "circumferential directions" (plural?) is being described. In claim 17, the description of the portion intersecting the prolongations (last four lines) is confusing and ambiguous.

In claim 19, there is no antecedent basis for "the groove extending along tire circumferential". Also, it is not clear why "circumferential directions" (plural?) is being described.

In claim 20, it is unclear how "when" and "if" affect the scope of the claim.

In claims 21 and 22, it is unclear how "if" affects the scope of the claim.

3) The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4) The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Heinen

5) **Claims 1-7, 9-11, 13-14 and 20-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Heinen (US 6415835).**

Applicant cannot rely upon the foreign priority papers to overcome this rejection because a translation of said papers has not been made of record in accordance with 37 CFR 1.55. See MPEP § 201.15.

Heinen discloses a tire having at least one at least one groove for channeling water wherein each groove wall has peaks and valleys. The depth of each peak can vary so as to defines riblets 28. See figure 5. The riblets of figure 5 are defined by "radially extending shallow grooves" and "longitudinally extending grooves". See figure 5. The peaks and valleys reduce skin friction drag to thereby increase water flow from the groove. Heinen teaches that pitch P1 and depth D1 of the peaks and valleys can be optimized for tire speed and groove size. Heinen teaches that the pitch P1 may be less than 40% of the groove width (e.g. less than 5 mm) and the depth may be 5-15% of groove width (e.g. less than 3 mm).

As to claim 1, it would have been obvious to one of ordinary skill in the art to use shallow longitudinally extending grooves having the claimed depth (0.1-0.5 mm) and the claimed pitch (0.5-0.5 mm) since (a) Heinen teaches using peaks and valleys to form riblets 28 (each riblet defined by "radially extending shallow grooves" and "longitudinally extending grooves"), (b) Heinen teaches that the peaks and valleys reduce skin friction drag to thereby increase water flow from the groove, and (c) Heinen teaches that the pitch P1 may be less than 40% of the groove width (e.g. less than 5 mm) and the depth may be 5-15% of groove width (e.g. less than 3 mm) wherein pitch P1 and depth D1 of the peaks and valleys can be optimized for tire speed and groove size. No undue experimentation would have been required to arrive at the claimed ranges for depth and

pitch in view of Heinen's teaching to size the peaks and valleys to reduce skin friction drag and thereby increase water flow so as to improve wet performance.

As to the dependent claims: The limitations therein would have been obvious in view of Heinen's teaching to form the riblets on walls of circumferential and lateral grooves using pitch P1 and depth D1 but not on the tread surface to reduce skin friction drag to thereby increase water flow from the groove. Claim 9 fails to require a distinction between a turbulence generating zone and a zone containing the smaller grooves. In claim 11, the pointed projections read on the riblets.

Europe '885

6) **Claims 1-10, 13-14 and 20-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Europe '885 (EP 820885).**

Europe '885 teaches forming smaller grooves in walls of sipes (a type of groove and specifically a narrow width groove). The smaller grooves are for removing water. The "at least one groove" in claim 1 reads on and fails to exclude a sipe. Europe '885 teaches that the interval of the large thickness portions (pitch of the shallow grooves) is 0.1 mm to 5.0 mm. Europe '885 teaches that the large width portion of the sipe is 0.1-1.5 mm and the thickness of the small width portion is 10-80% (midpoint being 45%) of the width of the large width portion. With smaller grooves on each wall therefore and with small width portion being 45%, the depth of the smaller grooves can be 0.023-0.338 mm which falls within the claimed range of 0.01-0.5 mm.

As to claim 1, it would have been obvious to one of ordinary skill in the art to use shallow longitudinally extending grooves having the claimed depth (0.1-0.5 mm) and the

claimed pitch (0.5-0.5 mm) in the walls of the sipe (a type of groove) in Europe '885 since Europe '885 teaches forming shallow grooves for removing water in the wall surfaces of the sipe (a type of groove) such that (a) the shallow grooves are inclined with respect to the radial direction and thereby extend along the length of the sipe (a type of groove), (b) the large width portion of the sipe is 0.1-1.5 mm and the thickness of the small width portion of the sipe is 10-80% and (c) Europe '885 teaches that the interval of the large thickness portions (pitch of the shallow grooves) is 0.1 mm to 5.0 mm. Claim 1 fails to require a groove width for the at least one groove which is *larger than* the groove width of the sipe of Europe '885.

As to the dependent claims, the limitations therein would have been obvious in view of Europe '885's teaching to form narrow shallow grooves on the walls of sipes to remove water. As to claim 4, isosceles triangle is taken as a well known alternative shape to square / rectangle. As to claim 6, it is taken as well known / conventional per se in the tread art to orient sipes laterally, circumferentially or laterally and circumferentially. As to claim 8, the bottom of the sipe does not have the smaller grooves. Claims 9 and 10 fail to exclude using the smaller grooves to define the turbulence zones. As to claim 23, arcuate is taken as a well known alternative shape to square / rectangle. As to claim 24, no smaller grooves are provided on the tread surface of Europe '885.

Japan '704

7) **Claims 1-10, 13-14, 18 and 20-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Japan '704 (JP 3-57704) in view of at least one of Europe '885 (EP 820885), Japan '633 (JP 7-186633) and Great Britain '477 (GB 565477).**

Japan '704 discloses a tire having a tread having grooves defining blocks wherein longitudinally extending narrow shallow grooves (dent lines) are formed in the wall surfaces.

As to claim 1, it would have been obvious to one of ordinary skill in the art to use shallow longitudinally extending grooves having the claimed depth (0.1-0.5 mm) and the claimed pitch (0.5-0.5 mm) in the walls of Japan '704 in view of (a) Japan '704's teaching to form longitudinally extending **shallow and narrow grooves** (having a depth for example of 0.5 mm) in the sidewalls of grooves defining blocks to improve water drainage and (b) at least one of Europe '885, Japan '633 and Great Britain '477 – Europe '885 suggesting using **shallow and narrow grooves** in wall for removing water, Japan '633 suggesting using **shallow and narrow grooves** defined by fine ribs (width 5 μm – 2mm, height 5 μm – 2mm and interval 5 μm – 2mm) so as to increase the number of narrow and shallow grooves for water drainage while preventing their collapse, and Great Britain suggesting closely spacing **shallow and narrow grooves** in groove sidewalls.

As to the dependent claims: The limitations therein would have been obvious and could have been determined without undue experimentation in view of (a) Japan '704's teaching to use narrow and shallow grooves in groove sidewalls to improve water

drainage and (b) the teachings regarding narrow and shallow grooves (e.g. their depth, spacing, shape) found in at least of Europe '885, Japan '633 and Great Britain '477. As to claim 8, note that at least Great Britain '477 suggests using a groove bottom free of smaller grooves. As to claims 13-14 and 21-22, note Japan '704's suggestion (figure 7) to use changing size and spacing of the shallow and narrow grooves. As to claim 18, it is taken as well known / conventional per se in the tread art to provide a longitudinally extending groove either as straight or sinusoidal. As to claim 24, note that the tread surface of Japan '704 is free of smaller grooves.

8) **Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over Japan '704 (JP 3-57704) in view of at least one of Europe '885 (EP 820885), Japan '633 (JP 7-186633) and Great Britain '477 (GB 565477) as applied above and further in view of Japan '605 (JP 3-86605).**

As to claim 19, it would have been obvious to incline the shallow grooves as claimed in view of Europe '885's teaching to incline narrow and shallow grooves and Japan '605's suggestion to direct water in a groove along a groove sidewall along an inclined curved path which approaches parallel near the ground surface (see figures 2 and 3).

Allowable Subject Matter

8) **Claims 12 and 15-17 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.**

Remarks

9) The remaining references are cited of interest.

Applicant is requested to provide copies of the foreign references described on pages 1 and 2 of the specification which have not been listed on the PTO 892..

Applicant is requested to provide a translation of Japan '704 (JP 3-57704) if available, it being noted that (a) Japan '704 and this application appear to have the same assignee and (b) applicant discusses Japan '704 at page 1 of the specification.

10) Any inquiry concerning this communication or earlier communications from the examiner should be directed to Steven D. Maki whose telephone number is 703-308-2068. The examiner can normally be reached on Mon. - Fri. 7:30 AM - 4:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Ball can be reached on (703) 308-2058. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9310 for regular communications and (703) 872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

Steven D. Maki
September 26, 2002


9-26-02
STEVEN D. MAKI
PRIMARY EXAMINER
GROUP 1300
A 1733